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Eschewing Mass: Dispersed Force Employment as a Counter to Anti-Access / Area-Denial Challenges

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**A paper submitted to the Faculty of the Naval War College in partial satisfaction of the requirements of the Department of Joint Military Operations.**

**The contents of this paper reflect my own personal views and are not necessarily endorsed by the Naval War College, the Department of the Navy, or the Department of the Air Force.**

Signature: \_\_\_\_\_

25 April 2010

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## GLOSSARY OF TERMS AND ACRONYMS

<b>A2/AD</b>	Anti-Access/Area Denial
<b>ASBM</b>	Anti-Ship Ballistic Missile
<b>ASCM</b>	Anti-Ship Cruise Missile
<b>BMD</b>	Ballistic Missile Defense
<b>CRS</b>	Congressional Research Services
<b>CSBA</b>	Center for Strategic and Budgetary Analysis
<b>CSG</b>	Carrier Strike Group
<b>IADS</b>	Integrated Air Defense Systems
<b>IAEA</b>	International Atomic Energy Agency
<b>IRGC</b>	Iranian Revolutionary Guards Corps
<b>JFCs</b>	Joint Force Commanders
<b>LACM</b>	Land-Attack Cruise Missile
<b>LCS</b>	Littoral Combat Ship
<b>LOCs</b>	Lines of Communication
<b>PLA</b>	People's Liberation Army
<b>PLAAF</b>	People's Liberation Army Air Force
<b>PLAN</b>	People's Liberation Army Navy
<b>PRC</b>	People's Republic of China
<b>QDR</b>	Quadrennial Defense Review
<b>SAM</b>	Surface-to-Air Missile
<b>SRBM</b>	Short Range Ballistic Missile
<b>WMD</b>	Weapons of Mass Destruction

## **ABSTRACT**

Since the end of the Cold War, potential US adversaries have realized the importance of deterring, delaying or disrupting US force deployment to crisis regions. To meet these ends, potential US adversaries have developed strategic, operational, and tactical methods to deny US forces entry into strategically vital regions or force them to operate from greater than desired range. These Anti-Access/Area Denial (A2/AD) techniques inhibit freedom of maneuver for US JFCs, deny US forces' the ability to seize the initiative, and threaten the survival of US Joint Forces. In order to ensure the US a continued ability to influence strategically important regions via military instruments, US JFC's should develop a dispersed, synchronized operations concept. Dispersal denies potential US adversaries strategically lucrative targets, complicates enemy decision making, and allows US forces to mass effects against critical enemy centers of gravity. Dispersed, synchronized operations offer significant advantages over current massed, "kick-the-door" in initiatives, and should be fully developed to include formalized doctrine, Theater Security Cooperation initiatives, supporting command-and-control techniques, and persistent Intelligence, Surveillance, and Reconnaissance tools. These efforts are vital to ensure JFCs have the ability to project US military power into strategically vital regions in time of crisis.

## **INTRODUCTION**

*"Without dominant US capabilities to project power, the integrity of US alliances and security partnerships could be called into question, reducing US security and influence, and increasing the possibility of conflict."*    Rebalancing the Force, 2010 Quadrennial Defense Review

As the Cold War drew to a close, US security policy shifted from one of containment and forward defense to one in which "the United States would rely less on permanently stationed forward-deployed forces and more on rotational deployments of US-based forces to regions of strategic significance and on power projection from the United States for crisis response."<sup>1</sup> A key assumption of this posture was the ability of the US to maintain global influence sufficient to allow deployment of forces to unpredictable crisis regions. Iraq became the first to challenge the US expeditionary model by invading Kuwait in 1991. By the end of Operation Desert Storm, potential adversaries learned an important lesson from the US' overwhelming victory: "unless the United States could be deterred or prevented from projecting forces into a theater of operation, its quantitative preponderance and qualitative advantages in advanced military capabilities inevitably would lead to a US victory."<sup>2</sup>

Reacting to the realities of new, expeditionary US power, adversaries began developing strategic, operational, and tactical techniques to deter regional interference, delay entry, and disrupt the flow of US forces into a crisis area. Aided by technologies proliferation, these methods encompassed both diplomatic pressures to delay the US, and the fielding of advanced military systems threatening survivability of US forces and freedom of action for US JFCs. Collectively, these A2/AD strategies create a significant challenge to US operational capabilities.

Development of A2/AD strategies greatly complicates US JFCs' ability to "establish and maintain access to operational areas where they are likely to operate, ensuring forward presence basing (to include availability of airfields), freedom of navigation, and cooperation with allied and/or coalition nations to enhance operational reach."<sup>3</sup> Risk to US forces increases dramatically

in an A2/AD scenario, and JFCs need new operational concepts to overcome these challenges.

Current reliance on massed air and maritime forces to roll back overlapping A2/AD systems does not provide a realistic, economic force capable of defeating these threats and gaining freedom of maneuver for US and Coalition forces. In order to ensure US and Coalition forces' ability to operate in an A2/AD scenario, JFCs need to look toward widely dispersed, synchronized operations capable of massing effects rather than forces in contested operations area.

This paper discusses the challenges posed by A2/AD techniques, and proposes a joint, dispersed operations concept to defeat A2/AD strategies and preserve US initiative. It defines the nature of current A2/AD strategies, specific examining the PRC and Iran. It next discusses theories on dispersal, and why a joint, dispersed operations concept is essential to overcome A2/AD strategies. Finally, it examines "kick-the-door in" access gaining concepts, and illustrates how lack of a truly joint approach and reliance on unproven or sole source technologies ultimately dooms these concepts.

## **FRAMING THE PROBLEM: DEFINING A2/AD STRATEGIES**

*"...diplomatic, political, economic, psychological, and other measures whose effects transform the nature of the conflict; operational methods...that force the United States to operate from greater than preferred range; and tactical methods...than can hinder deployment and onward movement." Dr Andrew Krepinevich, CSBA President<sup>4</sup>*

While there is no official Joint Publication definition for A2/AD, the 2010 QDR defines anti-access as, "strategies [that] seek to deny outside countries the ability to project power into a region, thereby allowing aggression or other destabilizing actions to be conducted by the anti-access power."<sup>5</sup> This definition roughly agrees with CSBA President Krepinevich's 2003 paper, "Meeting the Anti-Access and Area Denial Challenge," which also defines Area Denial.

If A2 strategies aim to prevent US forces entry into a theater of operations, then AD operations aim to prevent their freedom of action in the more narrow confines of the area under an enemy's direct control. AD operations thus include actions by an adversary in

the air, on land, and on and under the sea to contest and prevent US joint operations within their defended battlespace.<sup>6</sup>

While similar, A2/AD initiatives employ different means toward different ends. A2 strategies seek to deny or delay theater access, and include strategic level political, diplomatic, and economic efforts to do so. AD efforts occur at the operational and tactical level, driving US forces to employ from greater range and with less than desired freedom of maneuver, creating an unfavorable balance of space, time, and force factors for the operational commander.

Improvements to the military means of achieving these goals have significantly blurred these definitions. Ballistic and cruise missiles, once firmly viewed as useful A2 weapons against fixed bases and ports, have evolved to include anti-ship capabilities, effectively challenging freedom of maneuver. Many military instruments are now broadly capable of supporting both A2 and AD. While a JFC's responsibilities to preserve access<sup>7</sup> may include strategic political efforts to counter A2, this paper focuses exclusively on the military tools of A2/AD strategies and the operational impacts of these systems. Unfortunately for US JFCs, the range of military means to accomplish A2/AD is rapidly expanding.

In order to deter, disrupt, and delay entry to a theater and force them to operate at greater ranges, potential adversaries need a deep strike capability to attack US and allied or coalition bases, ports, and LOCs. Additionally, long range counter-air systems are needed to contest air superiority, a traditional US asymmetric advantage. In recent years, both types of systems have become readily available and increasingly capable.

While manned aircraft are the most widely used tool for deep strike, ballistic missiles offer a more attractive solution for developing, potentially hostile nations. “Missiles are much less expensive than acquiring and maintaining a world-class air force competitive with US military aviation.”<sup>8</sup> US forces’ inability to successfully target and defend against SCUDs in the

1991 Gulf War encouraged potential adversaries to develop and field greater numbers of ballistic missiles.<sup>9</sup> The development of improved inertial and GPS guidance systems, sub-munitions, and guided re-entry vehicles has dramatically improved the accuracy and lethality of these weapons. Iran, China, North Korea, Pakistan, and India are all assessed to possess short and medium range ballistic missiles capable of conventional, chemical or nuclear attacks.<sup>10</sup>

Cruise missiles offer similar advantages but are more flexible than ballistic missiles, and can be launched from the land, sea, or air. Due to their low altitude flight profile, ASCMs are difficult to detect by surface vessels, and when employed in mass volleys can saturate and overcome fleet defense systems.<sup>11</sup> ASCMs are easily adapted to a land-attack mission, typically have higher accuracy, and are cheaper than ballistic missiles. They possess greater mobility and are more difficult to detect due to a lower IR-signature during a launch event. Some LACMs and ASCMs employ stealth technologies.<sup>12</sup> A 2002 CRS report identified 18 countries indigenously producing cruise missiles, with a further 22 nations industrially capable of production.<sup>13</sup>

Further impeding US actions in an A2/AD scenario would be modern IADS employing advanced, “double-digit” SAMs. As indicated in Figure 1, advanced SAMs such as the SA-20, SA-21, and HQ-9 have a range exceeding 100nm. Modern, digitized IADS network early warning, target acquisition, and target engagement radars to share data, simplify target handoffs, and maximize the efficiency of the IADS. Further, each SA-10/-20/HQ-9 battalion is comprised of multiple target engagement RADARS, launchers, and C2 vehicles, all of which are mobile.

A 2008 *Aviation Week and Space Technology* article noted, “the proliferation of so-called double-digit surface-to-air missile systems - such as the Almaz Antey SA-20 (S-300PMU1/S-300PMU2) - poses an increasing threat to non-stealthy aircraft, and will force changes in tactics and operational planning. These modern weapon systems are going to deny us strategic and

operational options that in the past we haven't had to worry about."<sup>14</sup> In addition to strategic systems, highly capable point defense SAMs can protect the long-range SAMs from cruise missile strikes, as well as defend ballistic or cruise missile sites from counter-battery attack.<sup>15</sup>

With non-stealthy strike assets kept outside 100nm, aerial direct attack against any of these A2/AD systems becomes very complicated.

**FIGURE 1**  
**ADVANCED SAM RANGES<sup>16</sup>**

NATO REPORTING DESIGNATION / MANUFACTURER'S DESIGNATION	MANUFACTURING NATION	MAXIMUM SYSTEM RANGE	DEVELOPMENT STATUS
SA-10 / S-300 PMU-1	RUSSIA	54nm	OPERATIONAL
SA-12 / S-300V	RUSSIA	162nm	OPERATIONAL BALLISTIC MISSILE DEFENSE SYSTEM
SA-20 / SA-N-20 (NAVAL) / S-300 PMU-2	RUSSIA	120nm	OPERATIONAL
SA-21 / S-400	RUSSIA	150nm	OPERATIONAL
HQ-9 / HHQ-9 (NAVAL)	PRC	120nm	OPERATIONAL
NO NATO REPORTING NAME / S-500	RUSSIA	UNKNOWN (Estimated 2100NM range vs. ballistic missile targets)	DEVELOPMENTAL BALLISTIC MISSILE DEFENSE SYSTEM

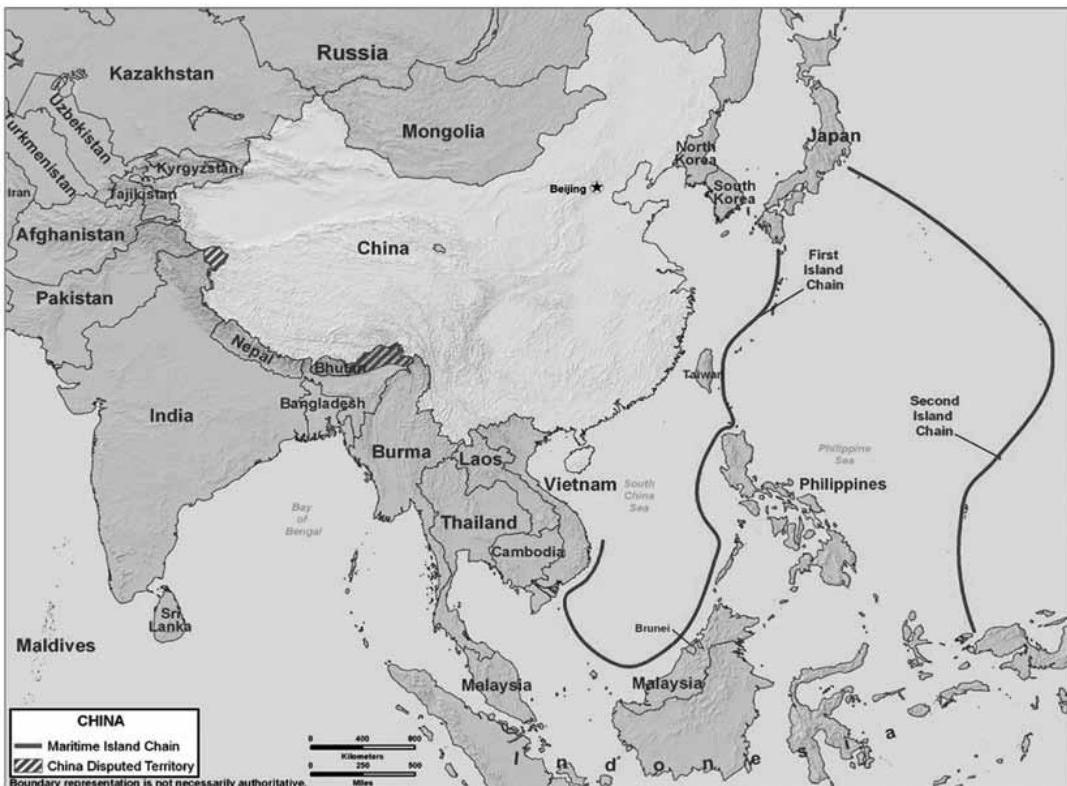
In addition to deep strike and advanced IADS, A2/AD military initiatives may incorporate a host of other technologies. Diesel attack submarines and advanced sea mines create significant access challenges for maritime forces. WMDs not only threaten alliances, bases, and ports, but—without sufficient means to counter them—offer significant deterrence to any US entry. The specifics of adversaries' A2/AD military tools varies greatly, but generally

includes some of these capabilities. To further illustrate the variety of A2/AD challenges, it is worth investigating two US critical strategic regions: the Western Pacific and the Persian Gulf.

### ***Western Pacific: People's Republic of China A2/AD Efforts***

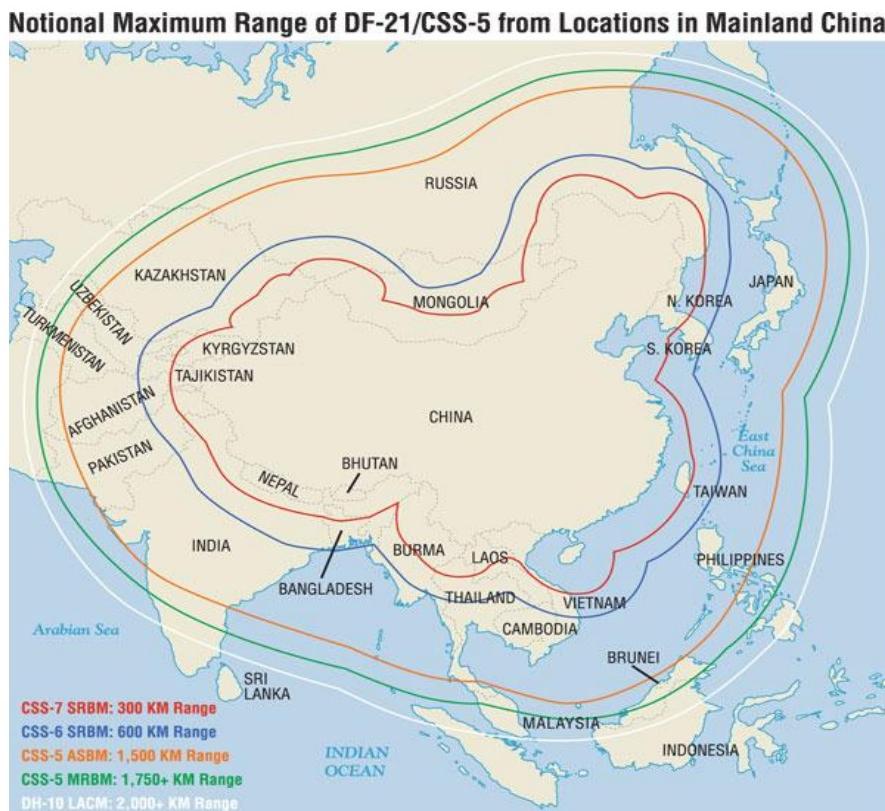
Since the US deployed two aircraft carriers into the Strait during the 1996 Taiwan crisis,<sup>17</sup> the PRC has focused extensively on modernizing its forces to limit US ability to influence the region. “Beijing is emphasizing A2/AD capabilities that can hold at risk both key-point targets (such as US forces at Kadena AB, Japan and Andersen AFB, Guam), and increasingly key mobile targets, such as aircraft carriers, out to the second island chain.”<sup>18</sup> (See Figure 2) These strategies include massive buildups of PLA missile forces, with over 1,100 SRBMs targeted at Taiwan alone.<sup>19</sup> In addition to its increasingly large number of ballistic missiles, ASCMs, and advanced SAMs, China has developed several unique A2/AD measures.

**FIGURE 2**  
**CHINA TO THE SECOND ISLAND CHAIN<sup>20</sup>**



First, PLA analysts have identified US reliance on information systems as a weakness, and developed anti-satellite missiles, computer network attack capabilities, electro-magnetic pulse weapons, and electronic jamming systems to exploit this vulnerability.<sup>21</sup> Secondly, PRC strategists recognize the importance of aircraft carriers in US power projection, particularly over the vast oceans of the Pacific. They have dedicated significant efforts to developing weapons capable of targeting US carriers operating as far out as 1,500nm from the Chinese mainland. The most concerning of these is ASBM development. Recent indications indicate the PLA has developed an ASBM capability from the DF-21/CSS-5 family of ballistic missiles.<sup>22</sup> (See Figure 3) If so, this “carrier killer” dramatically improves the PRC’s anti-maritime capacity, adding redundancy to China’s A2/AD fleet of diesel submarines and prolific numbers of ASCMs.

**FIGURE 3**  
**DF-21/CSS-5 MAXIMUM EMPLOYMENT RANGES<sup>23</sup>**



PRC strategists believe several key steps will deter US involvement or increase costs so dramatically as to make it prohibitively expensive for the US to remain engaged. PRC doctrine emphasizes seizing the initiative through pre-emptive strikes against high value targets: US land and air bases in the Western Pacific and US carrier strike groups. These targets would be preemptively struck with salvoes of ballistic missiles, ASCMs, ASBMs, and followed up with attacks by PLAAF aircraft. Simultaneous attacks by PLAN submarines would further harass US surface combatants, while PLAAF fighters and SAMs attempt to gain air-superiority over the military objective area. Finally, anti-satellite and computer network attacks would deny US forces the information superiority and situational awareness critical to US operational doctrine.<sup>24</sup>

While PLA doctrine stresses the ability to seize initiative, the most important conclusion is the deterrence Chinese strategists hope to gain by establishing these capabilities. If the cost of entry into the second island chain is too high, the US will not risk entering the Western Pacific, and will cease attempts to project power inside the PRC sphere of influence. In that regard, PRC A2/AD efforts would achieve penultimate success.

### ***Persian Gulf: Iranian A2/AD Initiatives***

If the PRC represents the pinnacle of A2/AD initiatives, Iran represents a fledgling, but still dangerous capability. Iranian A2/AD efforts rely heavily on ASCMs, which have greater impact in the Persian Gulf due to the space factors of a constrained geographic region. From its advantageous position along the northeastern Gulf, Iran has built coastal defense fortresses and ASCM batteries threatening any maritime forces entering the Persian Gulf through the Strait of Hormuz and beyond.<sup>25</sup> Additionally, Iran is expanding its stockpile of ballistic missiles, and has purchased SA-20s from Russia, potentially denying air operations over most of the Gulf.<sup>26</sup> Like the PRC, Iran has also developed unique A2/AD measures optimized for its geographic location.

Iran's unique A2/AD measures almost all target maritime forces. As Krepinevich notes, "Iran hopes to progressively raise the cost to any power—the United States in particular—that desires to maintain a military presence in the Persian Gulf."<sup>27</sup> To accomplish this goal, Iranian plans include seeding the Persian Gulf with its stockpile of 2,000 to 3,000 anti-shipping mines. Additionally, Iranian fast boats are capable of carrying ASCMs, and IRGC tactics include practicing swarming attacks incorporating these vessels with lighter armed patrol boats.<sup>28</sup> Iran also obtained three Kilo-class submarines from Russia, two of which are kept operational.

Perhaps the most concerning Iranian A2/AD capability is the potential for employing WMD. In February of 2010, the IAEA released a report saying it had evidence of Iranian efforts to develop a nuclear warhead.<sup>29</sup> Coupled with Iran's ballistic missile expansion, a nuclear armed Iran is a significant deterrent to US power projection. Estimates on Iran's SRBM inventory vary greatly, ranging from 50 to 600 missiles with range beyond 300nm.<sup>30</sup> Even at the low end, 50 missiles poses significant risk to US bases along the southern littorals of the Persian Gulf. While it can be reasonably expected PLA forces would not employ WMDs in limited conflict, the same expectation is questionable for a nuclear armed Iran.

Iran's A2/AD capabilities are not nearly as mature as China's. However, its tailored capabilities, the geographic constraints of the Persian Gulf, and increased potential for WMD employment greatly raise risks to US forces operating in the region. As these examples illustrate, the trend for adversaries is to limit US options through robust efforts to seize initiative, slow US response, and prohibitively increase the costs of regional entry. As former US CNO Admiral Jay Johnson observed,

I anticipate that the next century will see those foes striving to target concentrations of troops and materiel ashore and attack our forces at sea and in the air. This is more than a sea-denial threat or a Navy problem. It is an area-denial threat whose defeat or negation

will become the single most crucial element in projecting and sustaining US military power where it is needed.<sup>31</sup>

To overcome this challenge, US JFC's need a new, joint operational concept capable of ensuring US access to critical strategic regions.

### **DISPERSAL vs. MASS: THEORETICAL FOUNDATIONS**

*“Fluidity of force may succeed where concentration of force merely entails a perilous rigidity”*  
B.H. Liddell Hart, Strategy<sup>32</sup>

Sir Julian Corbett is perhaps the first military theorist to advocate dispersal of forces as an alternative to mass. Opposing his contemporary, Alfred Thayer Mahan, Corbett argued dispersal was necessary for a fleet to effectively secure the maritime domains. A concentrated fleet was unable to protect far flung lines-of-communication, and was thus ineffective in achieving its primary goals.<sup>33</sup> In addition to securing wider geographic influence, Corbett's theories on dispersal embraced deception as a key component of maritime strategy.

Although Corbett was unfamiliar with Sun Tzu's Art of War, his theories were remarkably similar to the Chinese master. As Sun Tzu writes, “the ultimate in disposing one's troops is to be without ascertainable shape,”<sup>34</sup> so Corbett declares, “once the mass is formed, concealment and flexibility are at an end.”<sup>35</sup> In order to retain flexibility and preserve operational freedom from the enemy, dispersal is required:

The essential distinction of strategic deployment, which contemplates dispersal with a view to a choice of combinations, is flexibility and free movement...In the one sense of concentration we contemplate a disposal of force which will conceal our intention from the enemy and will permit us to adapt our movements to the plan of operation he develops.<sup>36</sup>

Dispersal thus serves to uniquely preserve initiative while denying—or at the least, delaying—enemy determinations of friendly action. While dispersal is useful for deception and preserving freedom of maneuver, Corbett also recognized the need to achieve operational concentration.

Critical to Corbett's theories was the requirement to mass forces at the appropriate moment: "concentration should be so arranged that any two parts may freely cohere, and that all parts may quickly condense into a mass at any point in the area of concentration."<sup>37</sup> While *Some Principles of Maritime Strategy* predates today's high speed forces and ranged weaponry, the ability to "freely cohere" aligns well with modern concepts. In *Joint Operational Warfare*, US Naval War College professor Milan Vego defines operational concentration as, "all...elements are within supporting distance of one another—in other words, when adjacent elements of the force can apply their full strength in coordination against a part of the enemy force."<sup>38</sup> While concentration for Corbett required physically massing forces, "the currently evolving theory and practice of concentration...puts far more emphasis on one's ability, not necessarily to physically concentrate combat forces, but to create overwhelming effects at the decisive place and time."<sup>39</sup>

The ability to mass effects would have held great appeal to Corbett. Although dispersal and deception are useful in maintaining initiative, when political objectives require "gain from the enemy," offensive operations become necessary.<sup>40</sup> In Corbett's words, offensive operations are more effective and preferential for stronger powers.<sup>41</sup> Specifically, when it is necessary to support an ally, gain control of the seas, or support land forces, dispersed maritime forces must be able to rapidly concentrate and apply massed effects as part of an offensive operation.<sup>42</sup>

Corbett's theories on dispersal illustrate three important principles in a modern context. First, dispersal offers a means to preserve initiative by denying adversaries the operational intelligence as to where forces are likely to attack. Second, dispersed forces using modern, ranged weaponry have the ability to rapidly transition to offensive operations by massing effects for operational concentration. Finally, dispersed forces are able to influence a wide geographic

region, projecting influence over a far greater range than massed forces. Each of these opportunities is critical in developing an operational concept to overcome A2/AD strategies.

### **THEORY INTO PRACTICE: DISPERSED, SYNCHRONIZED OPERATIONS**

*"A revival of the distributed strategic advance was required in order to revive the art and effect of strategy. Moreover, new conditions...suggest that advancing forces should not only be distributed as widely as is compatible with combined action, but be dispersed as much as is compatible with cohesion." BH Liddell Hart, Strategy<sup>43</sup>*

Existing literature on countering A2/AD strategies frequently lists dispersal as a viable passive defense. It is normally an extension of hardening, camouflage, concealment, and deception measures at fixed facilities, such as airfields. In a 2002 CSBA article, Dr. Christopher J. Bowie, a senior analyst for the Northrop Grumman Analysis Center, wrote:

Dispersing the force across a greater number of airfields would be an obvious counter to

reduce vulnerability at unprotected airfields. An attacker would need to keep track of activity at more airfields; attacks on individual airfields would strike fewer aircraft; and overall, an opponent would have to deliver more weapons to destroy the same number of aircraft.<sup>44</sup>

Against a weaker power with modest A2/AD assets, passive dispersal limits the options for seizing initiative from an adversary with quantitative and qualitative military advantages.

Two recent School of Advanced Air and Space Studies papers advance the dispersed airfield concept, proposing offensive opportunities. In their theses, USAF Majors William Pinter and Lawrence Spinetta recommend PACOM develop a network of austere, forward operating bases able to support short range fighter aircraft.<sup>45</sup> In addition to denying adversaries a high-value strategic target, Pinter's dispersal concept, "provides a...survivable basing framework, which enables a balance of inter- and intra- theater air assets to guarantee the capability of land-based air forces to fight from inside and outside enemy threat rings."<sup>46</sup>

Preserving the ability to operate land based fighters inside adversary A2/AD ranges is critical to maintaining US airpower's asymmetric advantage against weaker hostile powers.

However, as Dr. Bowie notes, for a variety of physiological and logistic reasons, "USAF land-based fighters will need to be based within 1,000 to 1,500 nautical miles of enemy territory to provide air cover and strike targets several hundred miles beyond the adversary's borders."<sup>47</sup> If dispersed fighter operations are paired with long range bomber operations from outside the A2/AD environment, the US preserves much of its airpower advantage. Similar asymmetric advantages can likewise be preserved in the maritime domain.

As Corbett indicated, dispersing maritime forces over a wider geographic area increases both the breadth of their sea control and the difficulty of their detection. Against an A2/AD adversary--particularly one wielding ASBMs or ASCMs--complicating detection is paramount for survival. To assist this survivability, Professor Robert Rubel, Dean of Naval Warfare Studies at the Naval War College, proposes a new operational construct for US naval forces.

In "The Navy's Changing Force Paradigm," Rubel argues US naval forces are undergoing a paradigm shift, moving away from CSGs as the primary tool of maritime power projection, and towards a dispersed, covert force capable of striking over great distances using missiles.<sup>48</sup> "Generally speaking, this force would be centered on submarines, especially the converted *Ohio*-class SSGNs (formerly SSBNs) and surface ships such as the *Arleigh Burke* (DDG 51) class of guided-missile destroyers and the Littoral Combat Ship."<sup>49</sup> This maritime "access generation force" brings important capabilities to a dispersed operations concept:

A strategy employing a "grid" populated with DDGs, submarines, and LCSs and using advanced missiles for both sea control and land attack might negate and neutralize investments in carrier-killing systems. Such an approach would make an overall naval operation more robust, as there would be no key ship type, the loss of one or two of which would unhinge the overall operation. Such an approach would also increase opportunities for deception, instilling doubt in the minds of potential opponents.<sup>50</sup>

Individually, both Rubel's dispersed maritime operations concept and the dispersed air operations concept offer significant possibilities for defeating A2/AD strategies. However, synchronizing these efforts gives JFC's the greatest qualitative edge to assure access.

### **FUSING INITIATIVES: A JOINT, SYNCHRONIZED, DISPERSED OPS CONCEPT**

*"Thus, what is of supreme importance in war is to attack the enemy's strategy." ~Sun Tzu<sup>51</sup>*

Synchronizing air and maritime dispersed operations efforts capitalizes on the benefits of both concepts. In an example of the operational concept, stealthy fighter assets operating from dispersed forward locations synchronize deep strike attacks with covert maritime missile strikes from SSGNs. Simultaneously, DDG-51 and B-52 strikes employ standoff weapons from beyond adversary A2/AD ranges. As these layered, offense-in-depth attacks continue, manned stealthy bombers perform ISR and time sensitive strikes against emerging targets, supporting the overall effort and passing targeting information back to over-the-horizon forces. Multiple, widely spaced forces threaten swaths of enemy geography and disguise US and allied/coalition forces' full intentions, paralyzing enemy decision making. Under these circumstances, an A2/AD adversary is denied the ability to seize the initiative, and is unable to delay US forces' entry without expending significant stockpiles of their A2/AD weaponry. In short, the A2/AD strategy fails to achieve its primary goals.

By employing access-insensitive, covert systems alongside conventional platforms, US forces significantly complicate enemy targeting problems. Efforts to detect and target low-observable assets are complicated by persistent, over-the-horizon strikes, sowing fog and friction for the enemy. Spreading these forces across the geographic boundaries of the operating area forces an adversary to defend everywhere simultaneously. As Sun Tzu notes, when the enemy "prepares to defend everywhere, everywhere will be weak."<sup>52</sup> If A2/AD assets are dispersed too

thinly, they cease to remain effective, and cannot deny freedom of action. Accordingly, US forces gain the option to directly attack enemy centers-of-gravity.

### **COUNTER-ARGUMENT: KICKING THE DOOR DOWN**

*"Stealth applied to bombers and maneuverable fighters, all-weather precision-guided munitions, and unmanned aerial vehicles will allow us to maneuver over, around, and through advanced defensive systems and networks already available to potential adversaries." Gen John P. Jumper, USAF<sup>53</sup>*

An alternative to dispersed operations is to employ massed, technologically dominant US forces, applying qualitative advantages to "kick the door down" on A2/AD strategies. While no truly joint doctrine exists for this concept, both the USAF and US Navy have made considerable efforts to solve the anti-access problem in broadly complimentary solutions. Within these compatible efforts, each service addresses the A2/AD problem via different approaches.

The Air Force's access-gaining concept, Global Strike Task Force (GSTF), focuses on defeating an adversary's counter-air AD systems. Prior to the outset of hostilities, access insensitive platforms—B-2s and F-22s—would “deploy to forward-based ‘home stations’ and begin developing comprehensive awareness of enemy targets, capabilities, and likely courses of action.”<sup>54</sup> At the beginning of a conflict, these low-observable platforms operate within the denied airspace to locate and destroy enemy A2 systems and high value targets, and thereafter sustain access for follow on, persistent joint or coalition forces. This force’s success hinges on asymmetric advantages in low-observable technologies, precision targeting, and dominant ISR. Additionally, by “leveraging information technologies, it will be not only be possible to develop a complete, accurate, clear, coherent, persistent, real-time picture of the battlespace, but predictive battlespace awareness.”<sup>55</sup> This information dominance enhances GSTF efforts.

The US Navy’s access gaining concepts have their roots in Sea Power 21, a 2002 era maritime strategy which declared, “We assure access.”<sup>56</sup> In Sea Power 21, US Navy forces gain

access via an inside-out approach, using the LCS to dominate coastal maritime regions and attack land based A2/AD systems in support of joint forces over the horizon. Simultaneously, deep water forces project power ashore via CSGs, supported by submarines, cruisers, and destroyers. Operational protection of maritime forces is accomplished via Sea Shield, providing BMD, sea control, overland defense, and sea/littoral superiority.<sup>57</sup> Finally, the Navy assures regional access via Sea Basing, eliminating the need to tie US forces to vulnerable land bases, and preserving flexible movement options and operational logistics support.<sup>58</sup>

While counter A2/AD ideas were updated in 2007's Cooperative Strategy for 21<sup>st</sup> Century Sea Power, the Navy's operational concepts remain basically the same: primary power projection is accomplished via CSGs, supported by BMD ships and AEGIS capable platforms for defense. The 2007 strategy also places increased emphasis on Expeditionary Strike Groups (ESGs) and globally dispersed, smaller units tailored to provide visible, forward US presence.<sup>59</sup>

## **REBUTTAL: TECHNOLOGY DEPENDENT, STILL OVERLY VULNERABLE**

Both GSTF and Sea Power 21 offer distinct methods of countering an A2/AD strategy. Elements of each are also reflected, to a degree, in the proposed joint dispersed, synchronized operations concept. However, as mentioned previously, neither GSTF nor Sea Power 21 offers a truly joint solution. Additionally, both concepts ignore some aspects of A2/AD strategies: seize initiative, delay US forces' arrival, and raise the cost of operation to prohibitive levels.

The Air Force's concept fails in three major regards. First, GSTF assumes an ability to read strategic indicators and stage forces' prior to the outset of hostilities. Since A2/AD strategies are designed to seize the initiative, usually via pre-emption, this assumption seems unlikely. If forward "home bases" are denied prior to fighter aircraft deployment, operations from outside 1,500nm would greatly reduce the number and persistence of GSTF assets.

Secondly, GSTF is wholly reliant on low-observable platforms like the B-2 and F-22. Low-observable (stealthy) platforms are not invisible, and as Joint Force Quarterly reported in 2009, passive RADAR and other anti-stealth systems are nearing operational reality.<sup>60</sup> Similarly, estimates on improved information technologies and ‘predictive battlespace awareness’ seem overly optimistic. Finally, the GSTF’s singular line-of-operation does little to complicate an A2/AD adversary’s decision process, and is unlikely to regain initiative from pre-emptive attack.

Sea Power 21’s concepts are more palatable than GSTF, but still fall short of the joint dispersed, synchronized operations concept. Sea Power 21’s access gaining relies on CSGs for power projection, greatly increasing operational risk to maritime forces. Aircraft carriers offer a lucrative, strategically rewarding target for adversaries, and the BMD capabilities postulated in Sea Shield are insufficient to counter emerging ASBM technologies.<sup>61</sup> Sea basing, like CSGs and fixed airfields, would be vulnerable to massed ASBM and ASCM attack. More critically:

The sea base is much more susceptible to catastrophic damage from individual missile leakers than a land base...A single SS-N-22 ASCM would likely disable, or sink outright, anything smaller than an aircraft carrier, whereas the damage to a land base caused by one or two 2000-pound high explosive warheads delivered by missiles is likely to be much less.<sup>62</sup>

Given this vulnerability, both CSGs and sea-basing would have to be positioned outside the A2/AD region, once again ceding initiative to the adversary.

Finally, the Navy’s inside-out employment concept for the LCS appears problematic. “It rests on shaky operational assumptions such as the LCS will always have the dominant awareness to avoid threats, or that its signature reduction will make it virtually invisible, or that its speed and maneuverability will allow it to generate misses.”<sup>63</sup> These assumptions are at best, optimistic, and at worst, reliant on information systems and vulnerable technologies likely to be exploited by an A2/AD capable adversary. Similar to GSTF’s assumptions regarding stealth,

these concepts bear strong resemblance to Giulio Douhet's early influences on pre-World War II Air Corps tactics: "the bomber will always get through."<sup>64</sup> Regrettably, these assumptions were tremendously costly expenditures of American blood and treasure. Over reliance on purely technological solutions to A2/AD challenges will likely yield similar results.

In 2002, a \$250M joint theater war game illustrated the limitations of exclusive reliance on "transformational" technologies espoused by GSTF and Sea Power 21. During the exercise, a massed, technologically dominant US force attempted forcible entry to the Persian Gulf. Despite overwhelming superiority of US forces, an innovative "red force" adversary used salvos of ASCMs and swarms of fast attack boats to disable and sink over 50% of US forces.<sup>65</sup> Far from demonstrating the ability to "kick-the-door down," Millennium Challenge 2002 dramatically highlights the need for a new operational concept to counter A2/AD strategies.

## **CONCLUSIONS AND SPECIFIC RECOMMENDATIONS**

Joint, dispersed, synchronized operations offer JFCs the possibility of maintaining freedom of action in an A2/AD scenario. By operating as small, widely dispersed units, US forces can deny enemies a strategically valuable pre-emptive targeting opportunity while preserving the ability to rapidly mass effects by a combination of stand-off weapons technologies and access insensitive, covert forces. The concept is not reliant on a single platform or technology, utilizes existing capabilities, and can easily incorporate new advances--such as full realization of Sea Shield's theater BMD capability--to improve the survivability, efficiency, and flexibility of dispersed forces. To fully operationalize the concept, regional Combatant Commanders and JFCs need to endorse and encourage certain developmental efforts.

First, the US should work to develop a network of secondary, austere airfields as alternate operating locations in A2/AD contested regions. This effort should occur primarily at the

strategic level, as part of each Combatant Commander's Theater Security Cooperation (TSC) efforts. Securing these airbase alternatives not only assures the ability to operate the land-based airpower component of the concept, but it also acts as a counter to adversaries' A2/AD strategic political deterrence. Strengthening TSC ties and relationships helps to ensure US forces will be able to access critical airfields and maintain dispersal options for short range fighters.

US commanders also need to formalize efforts to develop the dispersed, synchronized operations concept into Joint Doctrine. In September 2009, the USAF and US Navy signed a classified memorandum of agreement to collaborate on Air-Sea Battle, a new operational concept seeking to answer, "how do we integrate Air Force and Navy capabilities to meet [Combatant Commander] needs?"<sup>66</sup> Among the most important of these needs is the requirement to assure access. The initial Air Force-Navy memorandum was a broad brush for establishing closer cooperation, the officers charged with writing Air-Sea Battle into reality should look towards developing it into a formal doctrine for dispersed, synchronized operations.

A critical component of dispersed, synchronized operations will be revised command and control (C2) techniques and relationships. The Navy's existing Composite Warfare Commander concept will likely prove unworkable for individual combatant systems dispersed across an entire theater. This limitation will be even more highlighted in an information denied A2/AD scenario, such as proposed by PRC strategists. Similar limitations exist for fighter aircraft, which typically operate under direct control of an AWACS or regional Air operations Center. A new C2 structure needs to re-emphasize US doctrinal precepts of de-centralized execution, allowing small units of widely dispersed forces to execute their mission even when widely separated from the operational commander. Air-Sea Battle developers should look to C2 techniques used by strategic bomber and submarine forces in designing C2 for dispersed, synchronized operations.

A final requirement for developing Joint Doctrine on dispersed, synchronized operations is to expand the quantity and robustness of US staring, "deep look" ISR. The ability to observe enemy actions with all weather, persistent, high fidelity ISR assets will be critical in generating targeting data for widely dispersed strike assets. Particularly for assets operating in an over-the-horizon strike capacity, generating and distributing this information is vital to timely employment. This ISR necessity is a critical demand, and one of the most difficult requirements in fielding a dispersed force capable of striking an A2/AD adversary. However, as Professor Rubel notes, while challenging, it "is a better combat problem to have to solve than the defense of a carrier battle group."<sup>67</sup> Expanded to US forces at large, developing the ISR capabilities to support truly joint, dispersed, synchronized operations doctrine is far less rigorous than ceding US initiative and assuming a defensive posture against A2/AD adversaries.

## NOTES

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<sup>3</sup> Joint Chiefs of Staff, Joint Operations Joint Pub 3-0 (Washington, DC: 2008). V-3.

<sup>4</sup> Larson, Eric V. et al., pgxii.

<sup>5</sup> Department of Defense, 2010 Quadrennial Defense Review Report 2010.  
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<sup>6</sup> Krepinevich et al, Meeting the Anti-Access and Area-Denial Challenge, 5.

<sup>7</sup> Joint Chiefs of Staff, V-3.

<sup>8</sup> Bowie, Christopher J, The Anti-Access Threat and Theater Air Bases (Washington, DC: Center for Strategic and Budgetary Assessments, 2002), 37.

<sup>9</sup> Ibid., 39.

<sup>10</sup> Ibid., 38-39.

<sup>11</sup> Ibid., 40.

<sup>12</sup> Ibid., 41.

<sup>13</sup> Bolckom, Christopher, and Susan Squassoni, Cruise Missile Proliferation Congressional Research Services, 3 July 2002. <<http://www.au.af.mil/au/awc/awcgate/crs/rs21252.pdf>> [31 March 2010]. Pg 2.

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<sup>15</sup> Ibid.

<sup>16</sup> All SAM data extracted from JANE'S ONLINE client services search. <<http://www.janes.com/>> [15 March 2010]

<sup>17</sup> Krepinevich, Andrew F, Why Air-Sea Battle? (Washington, DC: Center for Strategic and Budgetary Assessments, 2003), 13.

<sup>18</sup> Ibid.

<sup>19</sup> Ibid., 17.

<sup>20</sup> Department of Defense, "Annual Report to Congress on the Military Power of the People's Republic of China, 2009" <[http://www.defenselink.mil/pubs/pdfs/China\\_Military\\_Power\\_Report\\_2009.pdf](http://www.defenselink.mil/pubs/pdfs/China_Military_Power_Report_2009.pdf)> [15 March 2010].

<sup>21</sup> Cliff, Roger et al., Entering the Dragon's Lair: Chinese Anti-Access Strategies and their Implications for the United States (Santa Monica, CA: RAND, 2007), 38.

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- <sup>22</sup> Krepinevich, Andrew F., Why Air-Sea Battle?, 18.
- <sup>23</sup> Erickson, Andrew S. and David D. Yang, "On the Verge of a Game-Changer." (Proceedings Magazine, May 2009), <[http://www.usni.org/magazines/proceedings/archive/story.asp?STORY\\_ID=1856](http://www.usni.org/magazines/proceedings/archive/story.asp?STORY_ID=1856)> [1 March 2010].
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- <sup>25</sup> Ibid., 28.
- <sup>26</sup> Fulgham, David A.
- <sup>27</sup> Krepinevich, Andrew F., Why Air-Sea Battle?, 28.
- <sup>28</sup> Ibid., 29.
- <sup>29</sup> "New IAEA Report Warns About Iran's Nuclear Weapons Efforts." Heritage Foundation, 19 February 2010. <<http://blog.heritage.org/2010/02/19/new-iaea-report-warns-about-iran%20%99s-nuclear-weapons-efforts/>> [25 March 2010].
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- <sup>35</sup> Corbett, 131.
- <sup>36</sup> Ibid., 129-130.
- <sup>37</sup> Ibid., 152.
- <sup>38</sup> Vego, Milan N., Joint Operational Warfare: Theory and Practice, (Newport, RI: US Naval War College Press, September 2007), VII-5.
- <sup>39</sup> Vego, VII-6.
- <sup>40</sup> Corbett, 30-31.
- <sup>41</sup> Ibid.
- <sup>42</sup> Ibid., 33.
- <sup>43</sup> Liddell Hart, 332.
- <sup>44</sup> Bowie, 56.
- <sup>45</sup> Spinetta, Lawrence, "The Malacca-Dilemma: Countering China's String of Pearls with Land-Based Airpower," (Maxwell AFB, AL: School of Advanced Air and Space Studies, June 2006), <<https://research.maxwell.af.mil/papers/ay2006/saas/spinetta.pdf>> [25 February 2010], 36.

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<sup>46</sup> Pinter, William E., "Concentrating on Dispersed Operations: Answering the Emerging Anti-Access Challenge in the Pacific Rim," (Maxwell AFB, AL: School of Advanced Air and Space Studies, June 2003), <[http://aupress.maxwell.af.mil/SAAS\\_Theses/Pinter/Pinter.pdf](http://aupress.maxwell.af.mil/SAAS_Theses/Pinter/Pinter.pdf)> [25 February 2010], 27.

<sup>47</sup> Bowie, 14.

<sup>48</sup> Rubel, Robert C., "The Navy's Changing Force Paradigm," (Newport, RI: Naval War College Review, Spring 2009), 17.

<sup>49</sup> Ibid.

<sup>50</sup> Ibid., 18.

<sup>51</sup> Sun Tzu, 77.

<sup>52</sup> Ibid., 98.

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<sup>55</sup> Ibid., 13.

<sup>56</sup> Clark, Admiral Vern, "Sea Power 21," (Proceedings Magazine, October 2002), <<http://www.navy.mil/navydata/cno/proceedings.html>> [25 March 2010], 3.

<sup>57</sup> Ibid., 5.

<sup>58</sup> Krepinevich et al., Meeting the Anti-Access and Area-Denial Challenge, 31-35, 46.

<sup>59</sup> US Navy, "A Cooperative Strategy for 21<sup>st</sup> Century Sea Power," October 2007, <<http://www.navy.mil/maritime/Maritimestrategy.pdf>> [10 March 2010].

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<sup>61</sup> Erickson, Andrew S. and David D. Yang.

<sup>62</sup> Krepinevich et al., Meeting the Anti-Access and Area-Denial Challenge, 53.

<sup>63</sup> Ibid., 60.

<sup>64</sup> Ibid., 61.

<sup>65</sup> "The Immutable Nature of War," NOVA Online, <<http://www.pbs.org/wgbh/nova/wartech/nature.html>> [15 March 2010].

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